DOCUMENT RESUME

ED 301 875 CS 211 601

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TITLE Computer Invention Programs Today: Accessible and Authorable.
PUB DATE Mar 88
NOTE 24p.; Paper presented at the Annual Meeting of the Conference on College Composition and Communication (39th, St. Louis, MO, March 17-19, 1988).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Computer Assisted Instruction; *Computer Software; *Computer Software Reviews; Higher Education; Word Processing; *Writing Instruction

ABSTRACT

Discussing available computer software for prompting for the kinds of computers likely to be used in writing programs, this paper concentrates on categorizing software programs and exploring their "uniquely electronic" features. The paper deals with the following questions: (1) What kinds of planning software are available? (2) What happens when prompts are inserted in a word processing program? (3) How are outliners different from word processing templates? (4) What about branching, open-response, "true" prompting programs? and (5) Are there more "uniquely electronic" tools on the horizon? (Seven figures are included; an appendix containing a database of 15 programs that can be used for prompting is attached.) (SR)

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Computer Invention Programs Today: Accessible and Authorable

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Oakland University

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Computer Invention Programs Today: Accessible and Authorable

Wallis May Andersen, Oakland University

I've shifted the emphasis from the title in the program a bit because in fact a fair amount of software for prompting is available for the microcomputers likely to be used in writing programs, although not every program is available for every kind of hardware. And for many of the programs, authorability is not important because the prompts are generalized, appropriate for many different kinds of topics. So while I'll mention whether software is accessible and authorable, I'll concentrate more on categorizing programs and exploring their "uniquely electronic" features. I dissent somewhat from Diane Langston's call in 1986 for "new paradigms" ("The Old Paradigm in Computer Aids to Invention: A Critical Review." Rhetoric Society Quarterly 16 [1986]: 261-84) only because it seems to disparage current invention programs which have, it is true, been adapted from paper and pen prompting systems, but which also have many "uniquely electronic" features.

I've distributed a database of fifteen programs that can be used for prompting [included here as the Appendix]. Many of these are at the Software Sampler and/or book display. Others I've seen since I got here are Process Writer, a hypertext program from Holt, and Sheridan Prewriter, a planning program. Macintosh users might also investigate John McDaid's composition stackware for Hypercard called Rosetta.

I'm not going to attempt to evaluate the software here: there's simply not time to compare the features in any valid way. Nor am I going to argue the really complex question of whether using

CS 311601

invention software improves novice writing products. Gail Hawisher's survey shows that past studies have yielded mixed results. And the studies are still going on, including the one Bob Kozma's working on with a number of us in south-east Michigan through NCRIPTAL at the University of Michigan.

Today I'm making the following assumptions:

•First, novice writers benefit from learning planning strategies, as James Strickland reminds us, even if CAI produces no quantifiable improvements over pen-and-paper ("Computers, Invention, and the Power to Change Student Writing." Computers and Compostion 4.2[1987]: 18).

•Second, many novice writers benefit from computer use, in that word processing lessens the physical labor of writing and revising, or they at least enjoy using word processors--no small advantage for the writing teacher.

•Third, writing teachers are looking for ways to individualize writing instruction. Helen Schwartz reports that "with computer aids . . . we can combine the systematic coverage of a writing class with the individualization of a writing workshop" ("Teaching Writing with Computer Aids," College English 46.3[1984]: 239).

•Fourth, although there is less consensus here, I'm assuming students should use the computer when composing, not merely in transcribing previously created text.

•And, finally, prompting software supplements rather than replaces the teacher or intelligent reader. To be effective, these tools need to be TAUGHT to most novice writers.

What kinds of planning software are available?

Such software ranges from the very individual-to-the-teacher and simple system of inserting prompts in a word processing program through outliners which provide structuring but no content prompting unless inserted by teacher or student to branching, open-response programs such as Hugh Burns' TOPOI and Helen Schwartz's SEEN and Organize. In addition, Hypercard/hypertext promises to provide a valuable and "uniquely electronic" environment for prompting in the near future.

What happens when prompts are inserted in a word processing program?

Take the simple process of creating what Ron Sudol calls a "rubric" or template file for prompting. In Textfiles, students are directed to open a word processing file and enter the six categories shown in Figure 1 (San Diego: Harcourt, 1987: 54). This template is called up whenever the student needs to begin exploring a topic. Ideas are inserted after each heading, and the resulting file may be saved under a different file name and/or printed out.

content of the prompts

•The "rubric" can be as simple or as complicated as the instructor wants, and can be typed in by the student or copied from a prepared disk (the simplest sense of "authorable").

presentation of the prompts & uniquely electronic features

•More than any other CAI invention scheme, this replicates paper-and-pencil approaches, with some uniquely electronic features.

•Students who are bothered by scribing errors can easily correct them. More important for generating, the student can easily

review the material and insert (or delete or move) as ideas occur.

•Since inserting responses to the prompts depends on word-wraparound, responses can be as extensive as the student is willing to provide. On the other hand, there is no way to limit writer responses; some of the true prompting software sets limits (e.g., three lines for formulating a controlling idea).

•Some features of true prompting software can't be duplicated in word processing programs: no "branching" or hidden areas occur.

•No help screens are available.

•There is no illusion of dialog between the writer and the prompter; true prompting ("open response") software often inserts specific "fields" into later prompts or on subsequent screens, directing the student in the chosen topic-- unintelligently of course, but as Fred Kemp argues, such direction can be very powerful ("The User-Friendly Fallacy." College Composition and Communication 38.1 [1987]: 38).

technical matters

•Use is easy; the student needs to learn only one piece of software, the word processor, for both prompting and creating the discourse.

•Such files are "portable" in the most basic sense; especially if students are using different word processors, such an approach makes much sense.

•Moving material into another word processing file is relatively simple.

•No additional costs and licensing are involved.

How are outliners different from word processing templates?

Outliners share some of the features of the word processing templates in that they have no inherent content. But they do have inherent hierarchic structure.

The outliner can be used as an idea generator, either as a new file or as "rubric" with teacher-generated prompts. Further, the outliner could be used to stimulate early preliminary writing and/or later to organize the material from the exploration. If you're interested in more detail, Fran Zorn from the University of Michigan will be discussing her use of PC Outline at 1:45 today in Jefferson D.

Some "true" prompting programs include outliners, and some word processing programs integrate outliners, but many outliners are "stand alone" programs.

content of the prompts

As with the "rubric" textfile, the outliner has no pre-designed prompts. Figure 2 is a sample from an PC Outline assignment Fran Zorn uses at the University of Michigan; students respond to the questions in the outliner.

presentation of the prompts & uniquely electronic features

•Like the rubric file in the word processor, outliners replicate paper-and-pencil schemes, though again there are some unique electronic features.

•Most outliners have the basic editing features of word processors, so changes can be made quickly. Users are able to try out various structural patterns easily.

•Like the word processor, the outliner permits (in most cases) unlimited responses.

•The hierarchic structure is pre-established, and most outliners can print out the user's material in a variety of formats. What makes this "uniquely electronic" is that the user doesn't have to worry about the formatting and can concentrate on placement of ideas (particularly valuable for the novice writer who hasn't automated these conventions).

•Among the "uniquely electronic" features is the collapse-expand feature. Users can go back and collapse or hide some of the sub-levels so that the surface structure is highlighted, and returning to expanded sublevels is generally quick and easy. Such collapsing can be done, but not as efficiently, in a word processor, and some prompting software such as HBJ Writer incorporates this feature.

•As with the word processor, there is no built-in illusion of dialog for users of outliners; any branching or hidden areas would have to be designed by the instructor.

technical matters

•Use is fairly easy, though any new software requires some teaching.

•Outliners are portable in that several are available for almost any computer system.

•Text can generally be moved into a word processor fairly easily.

What about branching, open-response, "true" prompting programs?

Such programs present users with various heuristics--systematic and unsystematic, generalized and tailored to specific kinds of

writing tasks. Software in this category ranges from HBJ Writer, which integrates a word processor and some text-analysis features (Figure 3), to stand-alone programs like Organize by Helen Schwartz (Figure 4). Most of the stand-alone prompters permit transfer of the generated material to a word processor.

content of the prompts

•This ranges from freewriting through generalized prompts to prompts developed (usually by the instructor) for specific assignments. Writer's Helper incorporates programs for all three kinds of prompting: the "Brainstorms" program is freewriting. It measures typing speed and prints periods when the writer hesitates to prompt more writing and does not allow use of arrow keys or backspacing to edit. The program then asks focusing questions about the three-to-ten-line freewriting.

A second kind of prompting illustrated in Writer's Helper is general but "systematic"; "Three Ways of Seeing" gives the user twelve to fifteen questions in three groups based on the Young, Becker and Pike tagmemic scheme.

Finally, Writer's Helper has an "authorable" exercise for exploring subjects. The program has a set of built-in, one-line general questions, and the teacher may "author" and save files of up to twenty questions.

presentation of the prompts & uniquely electronic features

•To some extent, of course, all such prompting replicates paper-and-pencil strategies.

•Editing features of the prompters are generally limited, but this depends on the software. In UNC-Write, for example, the word processor window comes on the screen for the user's responses, so

full-feature editing is always possible. And in some cases no editing is permitted where this is pedagogically appropriate, as in Writer's Helper "Brainstorming." The editing scheme for the software your students use should probably be discussed with them; if not, they may expect full-function editing and be unreasonably annoyed if it's not available.

•Response length varies, and several of the programs impose artificial limits to encourage focusing, imposing minimum or maximum response lengths. With Organize, in the Basic Terms, the program asks for "one idea" about the writing and limits the response to one line. Mary Kappel's Writing Is Thinking at one point asks for a single sentence expressing an opinion on the topic and will not let the writer proceed without writing more than one line. Of course such limits are not "intelligent."

•Most of the prompting programs present a variety of approaches which the student may choose, with Writer's Helper far and away having the most (Figure 5). As Strickland indicates, such variety of prompts can support individual composing styles ("Problems and Promises: Invention on the Computer." ERIC, 1984. ED 273 987). Further, having the options on the screen and using menus to get to the invention system has a focusing element which printed material cannot have.

•If you want prompts tailored to a specific assignment, several of the programs are "authorable"; i.e., the text of the questions and, in the case of SEEN, even the help screens can be put in the program by instructors with no programming knowledge.

•For many programs, on-line explanations and help are available. While such "help" is not unique to computers, the

student's access to the information IS focused and facilitated by the computer.

•Among "uniquely electronic" features is interactivity. In SEEN, user responses can be incorporated in subsequent prompts, giving the illusion of dialog and encouraging focus.

•Some software, such as SEEN, allows for networking and electronic bulletin boards. Diane Langston spoke last year about using Cognoter and the 'CB' software from the ENFI projects to support online inventional activities for groups ("Invention Aids for Computer-Based Writing: Expanding the Horizons through Collaborative Invention." ERIC, 1987. ED 280 055). Fred Kemp and Paul Taylor talked yesterday about Forum, the "real-time conferencing" program they wrote and are using at UT/Austin.

•The majority of software listed on the database sticks to "directed prompting"; there is, however, one important software subgroup. Programs like HBJ Writer or UNC-Write incorporate full-function word processors, which may have some philosophic value in implying the reflexive nature of composing.

technical matters

•Depending on the program, use can be easy, but as with outliners prompting software needs some teaching. I would not turn a novice writer, even one accustomed to word processing, loose on any piece of prompting software without explanation of both the composing context and the command sequences used in the software.

•The software varies in portability; SEEN is now available in Apple II and IBM versions, as are Writer's Helper and Writing Is Thinking. But to some extent, at the moment, writing teachers are limited by the computer hardware they have access to.

•Materials from most prompting programs can be transferred into word processors, either the integrated word processor or other standard word processors. To me, this is a somewhat dubious advantage. I'm not at all sure I want my inexperienced writers thinking their preliminary writing results in a draft-like discourse which they can simply edit and submit.

Note, too, that licensing and portability constraints mean that such programs just about have to be used in classroom or lab settings; they are not "take home" materials. Since several people indicate that students use prompting programs less as they become more experienced writers (apparently they "automate" the planning elements), this may not be a serious drawback.

Are there more "uniquely electronic" tools on the horizon?

One new and exciting prospect, particularly for us Mac users, is Hypercard for "interrelational database" formats, including graphics as well as text. No commercial software using this specifically for prompting is available yet, but, as I mentioned earlier, John McDaid's composition stack Rosetta is due out in June. Under development and testing at Jackson Community College right now is a hypertext program called Storyspace (Figure 6). Bob Kozma's Learning Tool is, similarly, a hypertext program that, like an outliner, could be quickly and easily adapted for writing program use (Figure 7). While this has many points of similarity with outliners, the combination of graphic and text environments is another step in the direction of "uniquely electronic" aids for writers' planning.

Conclusion

We have a fair amount of invention software with some "uniquely electronic" features now available for the kinds of computers most of us have or may soon get for our writing programs. Several of the programs are authorable, also. Future software improvements may include more "computer network collaboration features, computer simulations, and interactive video/software," as Strickland suggests ("Computers" 18), but--to end on a humanistic note--what is of most importance is what the teacher does with the tools. These tools cannot "stand alone" for novice writers, but they can provide individualized practice in focusing and planning strategies characteristic of experienced writers.

Figure 1

Sudol, Preliminary Writing Probes

- Situation
- Purpose
- Message
- Audience
- Persona
- Design

Figure 2

PC Outline Exercise

Computer Exercise for Self-Inventory Question
University Course 210
1988

(FILE: Responab)

A. Think about previous jobs you have held as a volunteer, as a paid employee, or as a responsible family member.

1. Recall the level of responsibility you had in your VOLUNTEER JOBS.

a) List your volunteer jobs - for example, orderly, candy striper, dental assistant, teacher at a vacation Bible school.

b) Select one of these jobs (enter name of job here _____) and answer the following questions:

1) Did you have decision making power? Describe your decision making. In you mind, were the decisions major or minor?

2) If you did make major decisions, were you comfortable making them?

3) If you did not have to make key decisions, were you in the position of being responsible to see that the decisions of others were carried out?

4) How many people depended on you?

5) What kind of deadlines did you have to meet?

6) What would the consequences have been if you failed to meet your responsibility? Did this ever happen?

7) Did you ever consider that you also had a responsibility to yourself, to protect yourself from being overworked? Did that create a problem for you?

2. Recall the level of responsibility you had in JOBS FOR WHICH YOU WERE PAID.

a) List your jobs as a paid employee - for example, clerk at a grocery store, stock person in a store, waitress, camp counselor, counterperson at at fast food restaurant, secretary, research assistant

b) Select one of these jobs and answer the following questions:

1) Did you have decision making power? Describe your decision making. In you mind, were the decisions major or minor?

Figure 3

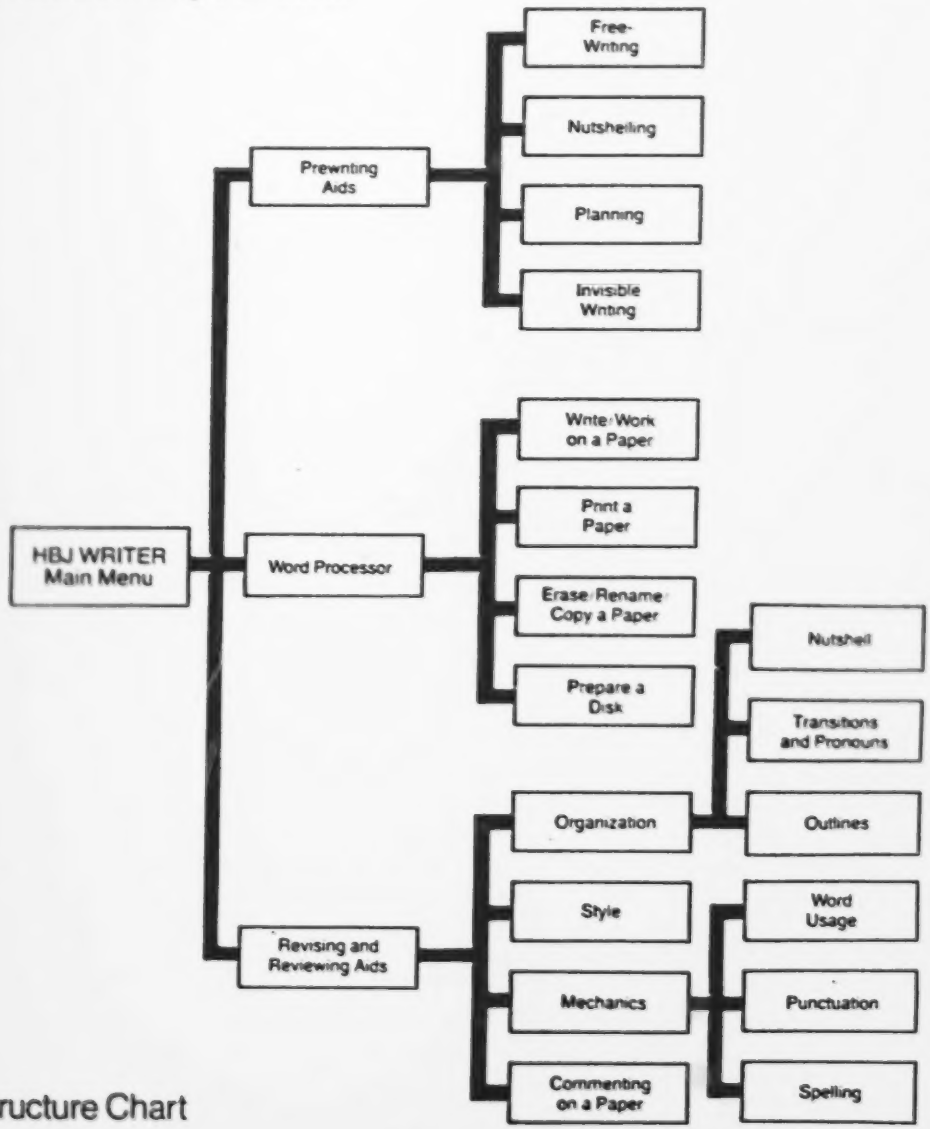
Chapter 1

About HBJ Writer

WELCOME TO *HBJ WRITER*

HBJ Writer is Harcourt Brace Jovanovich's "writer's aid." It helps you plan, write, edit, and revise your writing. The program contains three parts:

- Prewriting Aids that help you create and organize your ideas.
- A Word Processor that lets you type, edit, and print your work.
- Reviewing and Revising Aids that allow you to improve the mechanics (punctuation, word choice, and spelling), style, and organization of your text.



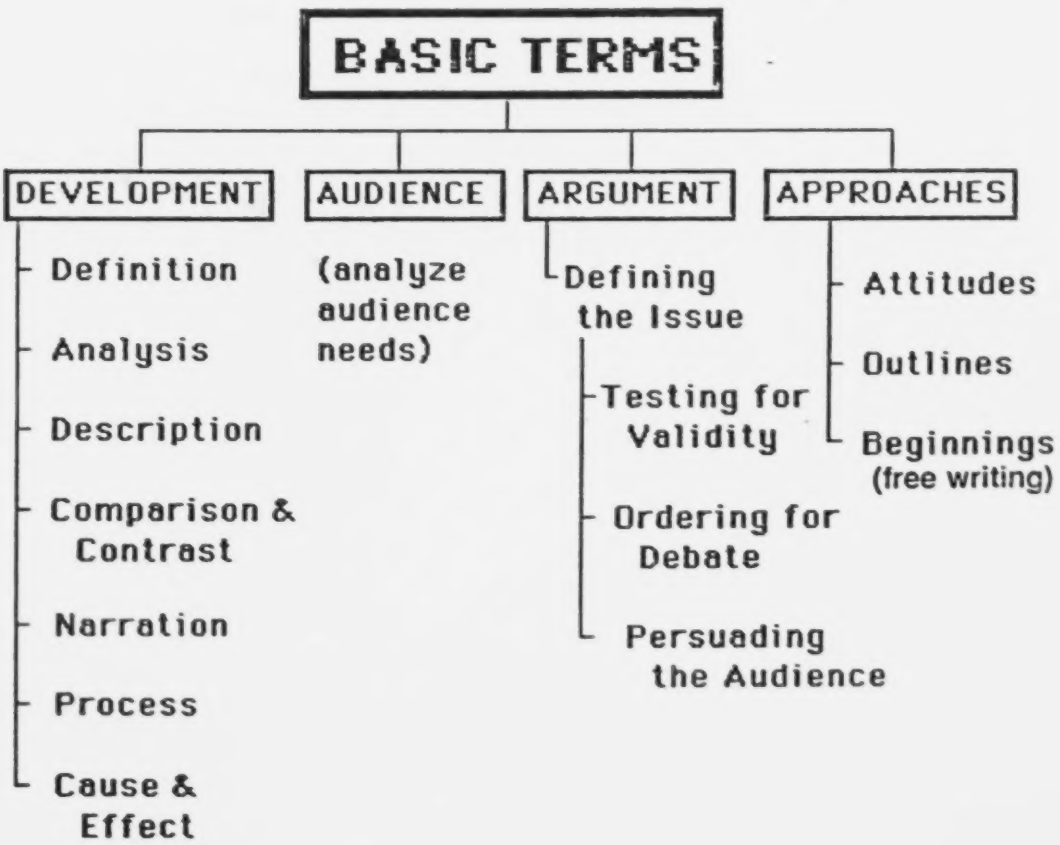
HBJ Writer Structure Chart

Figure 4

Chapter 1: Welcome to ORGANIZE

ORGANIZE is a writer's aid that helps you explore what you already know about a topic, see what you need to find out, and experiment with different ways to organize your ideas. Then you can print your ideafile or transfer it to a word processor for use when you write your paper.

After you define the **Basic Terms** of your writing assignment (topic, thesis, audience and purpose), you can choose among tutorials in four sections: **Development, Audience, Argument** and **Approaches.**



Map of **ORGANIZE**

Writer's Helper Stage II [Prewriting Activities]

Find a Subject

- Brainstorms
- Lists
- The Questioner
- Association
- Starters
- Idea Wheel

Explore a Subject

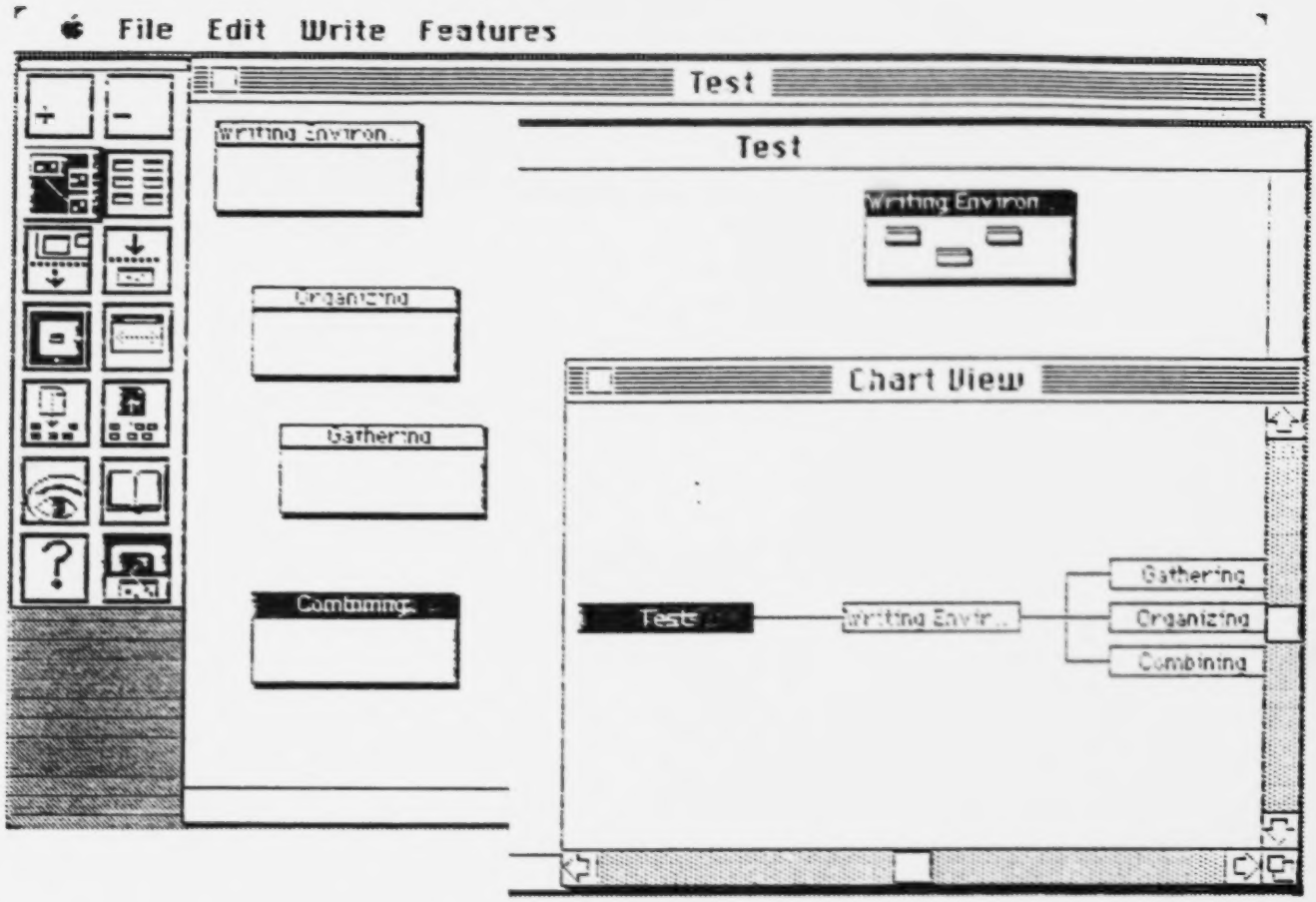
- Crazy Contrasts
- Three Ways of Seeing
- Audience
- Random Revelations
- Connections
- up to 5 "authored" activities

Organize Information

- Trees
- Debating an Issue
- Comparing and Contrasting
- Structure Guide
- Goals
- Outliner
- Develop a Single Paragraph
- Five-Paragraph Theme

STORYSPACE

Figure 6



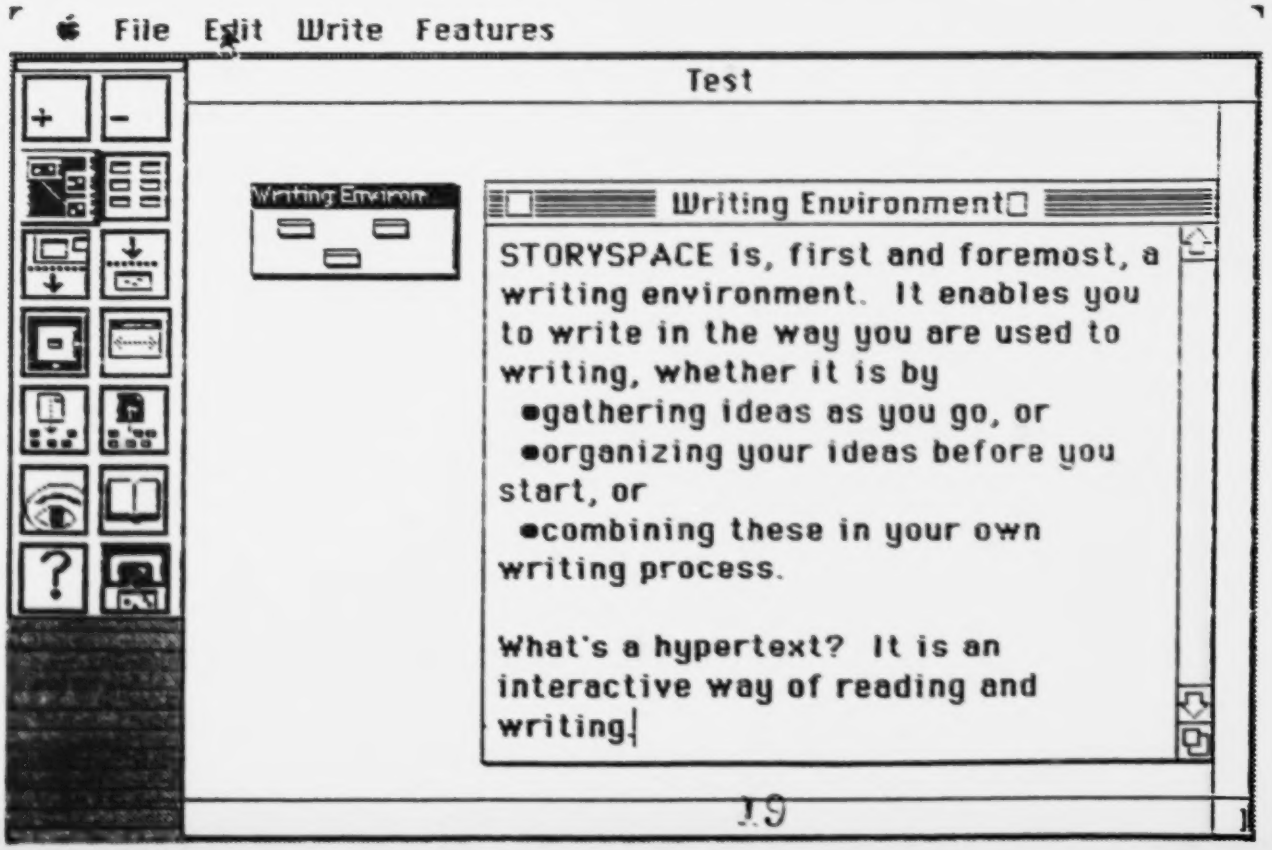
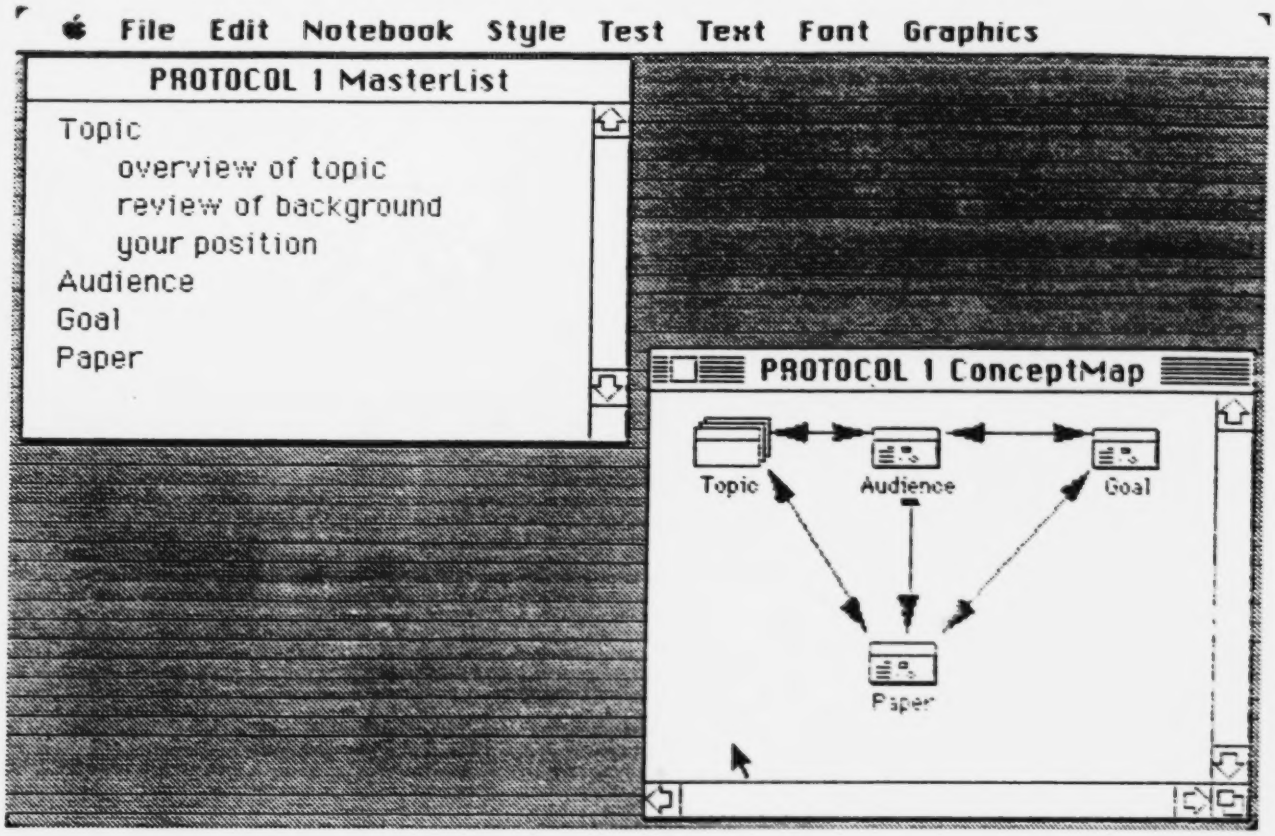
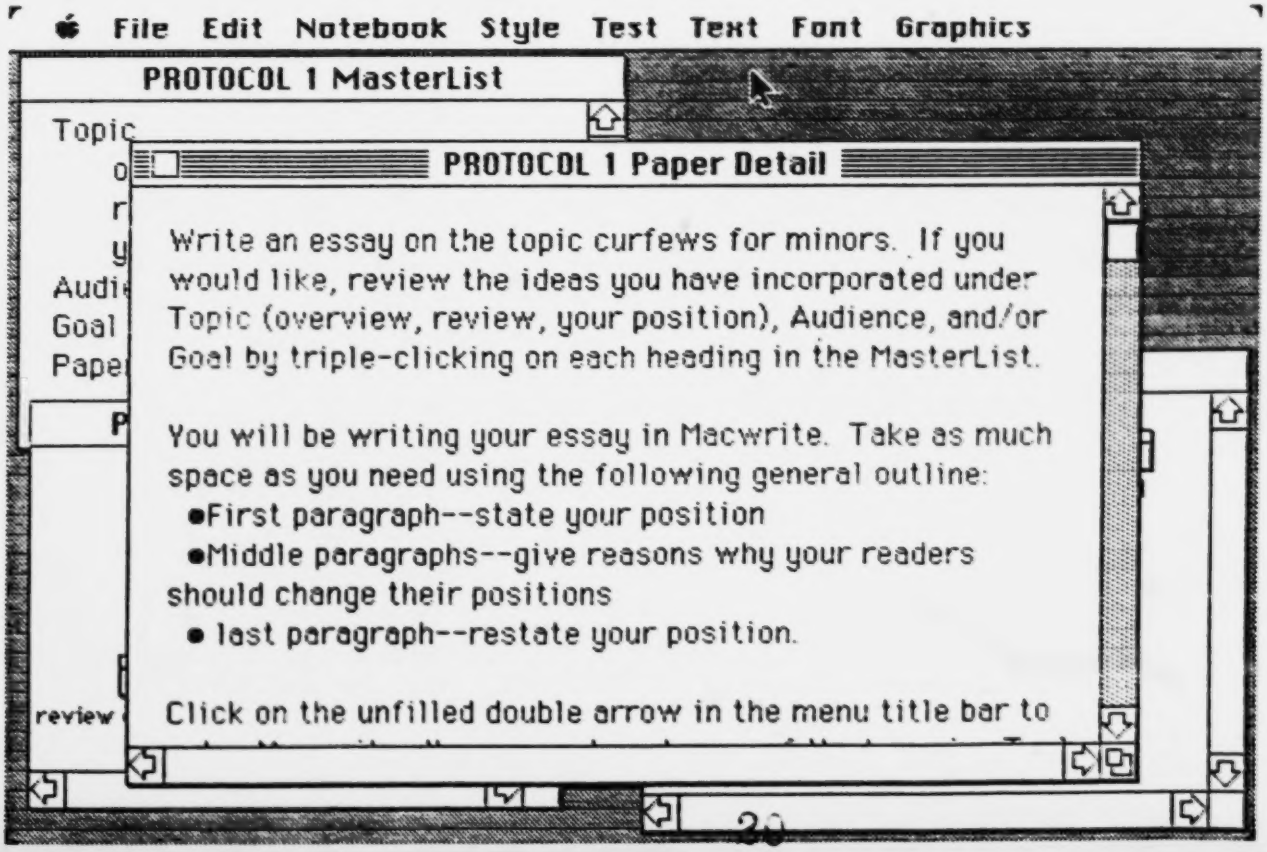

File Edit Write Features
Test
Writing Environ...
Writing Environment
STORYSPACE is, first and foremost, a writing environment. It enables you to write in the way you are used to writing, whether it is by
•gathering ideas as you go, or
•organizing your ideas before you start, or
•combining these in your own writing process.
What's a hypertext? It is an interactive way of reading and writing.

Figure 7

Learning Tool




File Edit Notebook Style Test Text Font Graphics
PROTOCOL 1 MasterList
PROTOCOL 1 Paper Detail
Write an essay on the topic curfews for minors. If you would like, review the ideas you have incorporated under Topic (overview, review, your position), Audience, and/or Goal by triple-clicking on each heading in the MasterList.
You will be writing your essay in Macwrite. Take as much space as you need using the following general outline:
•First paragraph--state your position
•Middle paragraphs--give reasons why your readers should change their positions
• last paragraph--restate your position.
Click on the unfilled double arrow in the menu title bar to

Invention Software for Microcomputers: A (no doubt) Incomplete Data Base, 3/15/88

1	Name	Free
	Author	J. Strickland
	Publisher	author
	Address	313 Eisenberg Hall, Slippery Rock U, Slippery Rock, PA 16057
	System Requirements	Apple II, DECMate II, IBM PC
	Price	Auth. Note: any word processing program can do this
	General Description	planning aid
	Invention Approach(es)	freewriting & focusing based on Elbow
	Authorable	no (n/a)
	WP Link	prints file and/or stores file on disk
2	Name	HBJ Writer
	Author	M. Friedman et al.
	Publisher	Harcourt
	Address	7555 Caldwell; Chicago, IL 60648
	System Requirements	IBM PC (256 K)
	Price	$50/computer; $25/student
	General Description	planning aid, editing aid, & WP
	Invention Approach(es)	freewriting, nutshelling, planning (argumentation), invisible writing
	Authorable	no (n/a)
	WP Link	integrated
3	Name	Idealogue
	Author	F. Kemp
	Publisher	not published
	Address	English Dept.; U of Texas, Austin; Austin, TX 78712
	System Requirements	IBM PC
	Price	n/a
	General Description	planning aid
	Invention Approach(es)	microcomputer version of Hugh Burns's three programs: Topoi, Burke, and TAGI; literary analysis questions also
	Authorable	no (n/a)
	WP Link	exports ASCII files
4	Name	Learning Tool
	Author	R. Kozma, J. Van Roekel
	Publisher	Arborworks
	Address	2540 Pittsfield, Ann Arbor, MI 48104
	System Requirements	Macintosh, 512K minimum
	Price	$60; licenses available
	General Description	hypertext "interactive database"
	Invention Approach(es)	none resident; "rubric"/template can be added; graphics-text environment
	Authorable	"rubric"/template
	WP Link	Macintosh "clipboard"

5	Name	Organize
	Author	H. Schwartz, L. Nachman
	Publisher	Wadsworth
	Address	7625 Empire; Florence, KY 41042
	System Requirements	Apple II e, c (128K)
	Price	$20.25
	General Description	planning aid
	Invention Approach(es)	definition, analysis, description, comparison & contrast, narration, process, cause & effect, audience analysis, attitudes analysis, argument, outlines, free writing
	Authorable	no (n/a)
	WP Link	DOS 3.3 export
6	Name	Prewrite
	Author	M. Schwartz
	Publisher	(Boynton/Cook)
	Address	
	System Requirements	Apple II
	Price	
	General Description	planning aid
	Invention Approach(es)	brainstorming, questions, journalistic heuristic, purpose & audience analysis, metaphors, freewriting, argument, cause & effect
	Authorable	yes--questions
	WP Link	export DOS 3.3; conversion to PRODOS "cumbersome"
7	Name	Proteus: The Idea Processor
	Author	
	Publisher	Research Design Associates
	Address	P.O. Box 848; Stony Brook, NY 11790
	System Requirements	Apple II+,e,c; manual indicates IBM, Tandy, TRS-80, C64
	Price	$80; lic. from $100/school/dept. -$429 20+schools/depts.
	General Description	planning aid
	Invention Approach(es)	5 heuristic tools: freewriting, looping, listing, cubing, 5 Ws
	Authorable	no (n/a)
	WP Link	DOS 3.3 & ProDOS export (review: "not perfect, slow")
8	Name	Quest
	Author	J. Strickland
	Publisher	author
	Address	313 Eisenberg Hall, Slippery Rock U, Slippery Rock, PA 16057
	System Requirements	Apple II, DECMate II, IBM PC
	Price	no charge; send self-addressed, stamped mailer and floppy disk
	General Description	planning aid
	Invention Approach(es)	15 general questions based on Hartwell's Open to Language heuristic (e.g., "What was it in the past?")
	Authorable	no (n/a)
	WP Link	exports ASCII file; prints out file and/or stores file on disk

9.	**Name**	SEEN
	Author	H. Schwartz
	Publisher	CONDUIT (Summer 1988)
	Address	U of Iowa, Oakdale Campus; Iowa City, IA 52242
	System Requirements	Apple II, IBM PC
	Price	
	General Description	planning and peer feedback aid
	Invention Approach(es)	11 tutorial questions & network bulletin board
	Authorable	yes; questions & on-line help screens
	WP Link	yes; "compatible WP"
10	**Name**	UNC Write
	Author	L. Avery, E. Lindemann, J. Wittig
	Publisher	Harcourt (Spring 1988)
	Address	
	System Requirements	IBM PC
	Price	
	General Description	planning aid & WP
	Invention Approach(es)	questions on subject, purpose, audience, experience, attitudes; organizing/structuring patterns including outlining
	Authorable	no (n/a)
	WP Link	integrated
11	**Name**	Storyspace
	Author	J.D. Bolter, M. Joyce, J.B. Smith
	Publisher	c/o Central Services (Broder-bund, Fall 1988)
	Address	1703 E. Michigan; Jackson, MI 49202
	System Requirements	Macintosh, 512K min.
	Price	
	General Description	planning aid; hypertext "structure editor"
	Invention Approach(es)	none resident; "rubric"/template can be added; graphics-text environment
	Authorable	"rubric"/template
	WP Link	Macintosh "clipboard"
12	**Name**	Writer's Helper (& WH Stage II)
	Author	W. Wresch
	Publisher	CONDUIT
	Address	U of Iowa, Oakdale Campus; Iowa City, IA 52242
	System Requirements	Apple IIe, c (128K), GS; IBM PC, PCjr, PC-XT, PS/2 (#25 & 30, 192K)
	Price	$120/instructor; $240/6-$600/25 student packs; $480 network version
	General Description	planning & revising aid
	Invention Approach(es)	many heuristics, incl: brainstorming, listing, questions, assn., idea wheel, crazy contrasts, 3 ways/seeing (TAGI), audience, trees, debate, comparison, outliner, 1W, 5-W theme
	Authorable	yes; 20 1-line questions (up to 5 sets)
	WP Link	export standard ASCII and many Apple & IBM WP

13.	Name	Writing is Thinking
	Author	M. Kappel
	Publisher	Kapstrom
	Address	5952 Royal, Suite 124; Dallas, TX 75230
	System Requirements	Apple II+, e, c; IBM PC, PCjr
	Price	$165; $3,300 site license
	General Description	planning, drafting, & revising aids
	Invention Approach(es)	brainstorming, focusing question, structuring/outlining patterns, "fact files," 2 introductory Ws, audience review
	Authorable	no (n/a)
	WP Link	integrated (designed for 500-1000 word rough and revised drafts)
14	Name	Create
	Author	V. Arms
	Publisher	Kinkos
	Address	4141 State; Santa Barbara, CA 93110
	System Requirements	Macintosh
	Price	$8
	General Description	planning and revising aid
	Invention Approach(es)	Aristotelian approach (questions cover focus, audience, purpose)
	Authorable	no (n/a)
	WP Link	Macintosh "clipboard"
15	Name	Quill Planner
	Author	
	Publisher	Heath
	Address	125 Spring; Lexington, MA 02173
	System Requirements	Apple
	Price	
	General Description	
	Invention Approach(es)	
	Authorable	
	WP Link	